EDITORIAL

Tuberculosis in Immigrants to Canada
A Global Problem Which Requires a Global Solution

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Tuberculosis has, for most of the 20th century, been on the decline in the industrialized world. At the same time, the disease has dramatically increased in the majority of the world’s population who live in the developing world.1,2 Tuberculosis was declared a ‘global emergency’ by the World Health Organisation in 1993 at a time when many Western countries were talking about the impending elimination of the disease. The low level of concern about the disease that this engendered in the Western world contributed to the lack of progress in the development of new approaches and tools to control tuberculosis.3 Also responsible was the unfounded confidence that the development in the 1970s of efficacious ‘short course’ treatment regimens would, given time, resolve the problem of tuberculosis. The results of the few effectiveness studies using these regimens under program conditions failed to raise the alert that short-course regimens were not, in reality, having their desired effect.4 For example, a 6-month regimen tested by the British Medical Research Council in East Africa, using subjects selected for compliance and treated largely in hospital, had a relapse rate of 9% while under program conditions, the same regimen had a relapse rate of 25%.4 The widespread introduction of these treatment regimens without an adequate infrastructure probably increased the infective pool by decreasing the mortality but not increasing the cure of tuberculosis.5 Furthermore, the inappropriate use of antituberculosis drugs has progressively increased the prevalence of resistant strains of Mycobacterium tuberculosis.5,7

Against the background of declining interest in and dismantling of programs for tuberculosis in the industrialized countries, there has been a steady increase in emigration from high prevalence to low prevalence tuberculosis countries.1 In areas in the industrialized world favoured by immigrants and where the matter has been studied, tuberculosis in foreign-born accounts for most of the disease. In Canada, 58% of all tuberculosis occurs in foreign-born7 while in the southern part of the province of Alberta, foreign-born accounted for 17% of the population and 71% of the tuberculosis in the period 1990 to 1995.9 In Canada it has been proposed that the population be supplemented with approximately 250,000 immigrants per year; this could lead to an annual increase rather than the hoped for decrease in the incidence of tuberculosis.

Tuberculosis in foreign-born is often caused by Mycobacterium tuberculosis which is resistant to one or more of the conventional antituberculosis drugs.10 Resistant Mycobacterium tuberculosis is three times more common in foreign-born than it is in Canadian-born with tuberculosis.11 Disease caused by resistant Mycobacterium tuberculosis is more difficult to treat and has greater morbidity and mortality than disease caused by a susceptible organism.12

The Canadian preimmigration screening program emphasizes tuberculosis by including a history of past tuberculosis and, for all potential immigrants over 11 years of age, a chest x-ray. Those found to have active pulmonary tuberculosis are denied immigration until their disease has been proved to be inactive by adequate treatment and follow-up. Those judged to have inactive pulmonary tuberculosis are required to attend for tuberculosis assessment after their arrival in Canada. In a paper in this issue of the Journal, Uppaluri and colleagues from Ontario report that this surveillance process identified only 14% of the immigrants who subsequently were diagnosed with tuberculosis.13 Their finding is similar to that reported in a survey of tuberculosis in immigrants to southern Alberta in which the immigration process identified 10% of those who subsequently developed tuberculosis.8 In both of these reports, the impact of treatment of latent tuberculosis infection (chemoprophylaxis) was disappointing, pointing to poor compliance either on the part of the physicians or the patients. Poor compliance is the major problem with chemoprophylaxis and may be particularly poor in foreign-born populations.14 The current guidelines suggest that all immigrants 35 years of age or less, with tuberculin reactions of 10 mm or greater, who come from high prevalence countries should be offered chemoprophylaxis with isoniazid.15 Half of the immigrants, all from countries with a high incidence of tuberculosis, who developed tuberculosis in southern Alberta8 and 60% of those in Canada8 were under 35 years of age at the time of their arrival in Canada and might thus have been eligible for chemoprophylaxis. Although the risk of isoniazid-induced liver toxicity increases significantly above the age of 35 years,16 those below that age, especially women and particularly those who are in the first year post-partum, may be at increased risk with four times more deaths than men of the same age.17 Severe side effects and death have been reported in recent reports, one from Canada associated with isoniazid18 and another from the USA in association with a ‘short-course’ regimen with rifampin and pyrazinamide.19 The data from follow-up of population groups in Canada demonstrate that isoniazid chemoprophylaxis might cause more cases of serious side-effects or even deaths than the number of cases of tuberculosis prevented when used in those with a positive tuberculin test and no other risk factors for developing tuberculosis.20 This opinion has previously been presented by others,21 and is supported by the observation that the incidence of tuberculosis in the Canadian immigrant population is only 20 per

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100,000 per year. A recent Canadian study has estimated that chemoprophylaxis is cost effective only for immigrants from countries with a high prevalence of tuberculosis who have abnormalities on their pre-immigration chest x-rays and not when provided on the basis of only a positive tuberculin skin test.22,23

Given the small impact of pre-immigration screening and the problems associated with preventive therapy in immigrants to Canada, the definitive way to decrease tuberculosis in the foreign-born is to decrease the prevalence of disease in their countries of origin.24,25 The industrialized world has the resources and the expertise to provide the relatively inexpensive and extremely cost-effective tuberculosis programs needed in these countries. Indeed Zumla and Grange suggest that it is morally wrong to do otherwise.24 This view is supported by a recent paper in which the inequalities of wealth and of health services across the regions of the world are emphasized and we are urged to think ‘about local and international activities that have the potential to improve well-being and health at the global level’.25

Canada is a signatory to the recent ‘G8 Communiqué Okinawa 2000’ in which the eight major industrialized democracies pledged to ‘reduce TB deaths and prevalence of the disease by 50% by 2010’. This Communiqué resurrects the spirit of the World Health Organisation’s Alma-Ata declaration of ‘Health for All by the Year 2000’,26 and we should pursue and attempt to exceed this goal in the context of tuberculosis.

In conclusion, if we are to control and eventually eradicate tuberculosis in Canada, we need to address the disease in our foreign-born population. The current screening programs detect only 10 to 14% of those immigrants who subsequently develop tuberculosis. Current chemoprophylaxis policies are ineffective and expensive. Our goal to eradicate tuberculosis in Canada can be best achieved by the development of new programs and the release of new resources. Ideally, and ultimately, these new programs must address tuberculosis in the world and not be local, expensive and largely cosmetic operations.

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**REFERENCES/REFERENCES**